Activity: **4.4**
Compile Project Requirements

Responsibility: Project Manager/Team

Description: Compile the requirements gathered during the requirements analysis process in preparation for the development and delivery of the draft Software Requirements Specification. The following steps should be performed as part of the requirements compilation activity.

- Select and use a standard format for describing the requirements.
- Present the logical and physical requirements without dictating a physical design or technical solutions.
- Write the requirements in nontechnical language that can be fully understood by the system owner and users.
- Organize the requirements into meaningful groupings (e.g., all security-related requirements or all requirements for generating reports).
- Develop a numbering scheme for the unique identification of each requirement.
- Select a method for: (1) tracing the requirements back to the sources of information used in deriving the requirements (e.g., specific system owner/user project objectives); and (2) threading requirements through all subsequent lifecycle activities (e.g., testing).

Tasks: The following tasks are involved in the compilation of the project requirements.

4.4.1 Develop Requirements Traceability Matrix
4.4.2 Develop Software Requirements Specification

Task: **4.4.1**
Develop Requirements Traceability Matrix

Description: A requirements traceability matrix is a table used to trace project lifecycle activities and work products to the project requirements.

Every project requirement must be traceable back to a specific project objective(s) described in the Project Plan. This traceability assures that the product will meet all of the project objectives and will not include inappropriate or extraneous functionality.

All work products developed during the design, code, and testing processes in subsequent lifecycle stages must be traced back to the project requirements described in the Software Requirements Specification. This traceability assures that the product will satisfy all of the requirements and remain within the project scope.

It is also important to know the source of each requirement, so that the requirements can be verified as necessary, accurate, and complete. Meeting conference records, user survey responses, and business documents are typical sources for project requirements.

Work Product: Develop a matrix to trace the requirements back to the project objectives identified in the Project Plan and forward through the remainder of the project lifecycle stages. Place a copy of the matrix in the Project File. Expand the matrix in each stage to show traceability of work products to the requirements and vice versa.

Sample Traceability Matrix: One method for tracing requirements is a threading matrix that groups requirements by project objectives. Under each project objective, the source of the requirement, the unique requirement identification number, and the lifecycle activities are listed in columns along the top and the project requirements in rows along the left side. As the project progresses through the lifecycle stages, a reference to each requirement is entered in the cell corresponding to the appropriate lifecycle activity. *Exhibit 4.4-1, Sample Requirements Traceability Matrix,* provides a sample matrix format.

Exhibit 4.4-1. Sample Requirements Traceability Matrix

Requirement	Source of Requirement	Unique Number	Design Spec.	Program Module	Test Spec.
Objective 1: Security					
The software product shall have four user access levels with the capability to add new access levels in the future.	conference record dated 5/19/95	SYSADM 1.0			
Each user access level shall have a unique designation.	conference record dated 5/19/95	SYSADM 1.1			
One user access level shall allow read-only access to the production data base.	conference record dated 5/19/95	SYSADM 1.2			
The second user access level shall allow read and write access to the production data base.	conference record dated 5/19/95	SYSADM 1.3			
The third user access level shall allow read, write, and delete access to the production data base and read-only access to the history data base.	conference record dated 5/19/95	SYSADM 1.4			
The fourth user access level shall allow read, write, and delete access to all application data bases.	conference record dated 5/19/95	SYSADM 1.5			

Task: **4.4.2**
Develop Software Requirements Specification

Description: The Software Requirements Specification describes the inputs to be supplied by the user or other sources, the processing that needs to occur, and the outputs desired by the user or required by interfacing systems. The emphasis should be placed on specifying product functions without implying how the product will provide those functions. This approach provides maximum flexibility for the product designers. The how-to of product implementation is determined in the design stages.

Work Product: Prepare the Software Requirements Specification by integrating all of the requirements developed during this stage. Several formats are available for organizing the requirements information (e.g., from a functional perspective or a data processing perspective).

Document all design constraints including processing, performance, interface, resource, safety, security and reliability requirements. Define data constraints such as limits, formats, messages, commands, and displays.

Review Process: Conduct structured walkthroughs as needed to ensure that the Software Requirements Specification is accurate, complete, and expresses the requirements in a manner that can be understood by the system owner.

The completion of the draft Software Requirements Specification is an appropriate time to schedule an In-Stage Assessment (ISA). The *In-Stage Assessment Process Guide* provides a description and instructions for conducting an ISA. A copy of the guide is provided in Appendix D.